

High Quantum Efficiency Type II SLS FPAs for Space-Based Applications, Phase I

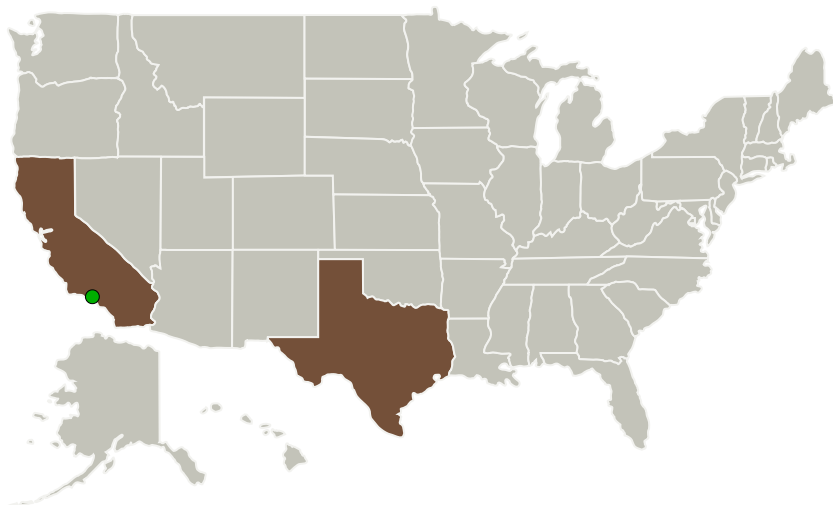
Completed Technology Project (2011 - 2011)




Project Introduction

This Phase I SBIR proposes to develop high quantum efficiency (QE) and low dark current infrared epitaxy materials based on Type II Strained Layer Superlattice (SLS) for space-based sensor applications. The epi materials will be grown with Sb-capable multi-wafer production Molecular Beam Epitaxy (MBE) reactor at IntelliEPI. The initial goal includes achieving QE of at least 50% with MWIR spectral wavelength band in the 2.5 to 5 μm . The SLS detector design will be done in collaboration with Dr. Sarath Gunapla's infrared device group at JPL to ensure that the effort addresses NASA needs. Advanced structure design incorporating barriers will be used to reduce dark current. If successful, a Focal Plane Array may be fabricated during Phase II.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
IntelliEPI IR, Inc.	Lead Organization	Industry	Richardson, Texas
 Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



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Primary U.S. Work Locations

California

Texas

Project Transitions

 **February 2011:** Project Start

 **September 2011:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140194>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

IntelliEPI IR, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

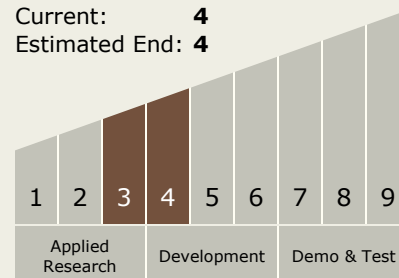
Paul R Pinsukanjana

Technology Maturity (TRL)

Start: **3**

Current: **4**

Estimated End: **4**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.1 Detectors and Focal Planes

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System